

AVENGINEERS

Amador Valley High School Engineering Club



Sponsorship Packet 2022-23

Amador Valley High School
Pleasanton, CA

VEX | VRC
www.avengineers.org



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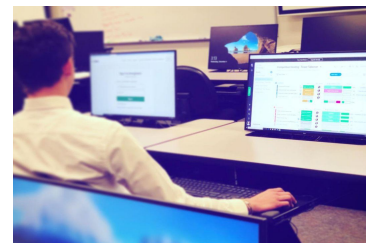
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ABOUT US

We are a team of Amador Valley High School students from Pleasanton, California. Our mission is to engage our members in approaching engineering challenges while building upon transferable skills applicable to the real world. Students are responsible for designing, building, testing, programming, and competing with their robots with and against teams from around the world. We integrate the curriculum of Project Lead The Way and use the highly competitive environment of VEX Robotics Competition to develop crucial organizational and leadership skills.



The Amador Valley High School VEX Robotics Team, known as the 1155A Avengers, was founded in 2012 as part of Amador Valley High School's engineering club with the help of our advisor, Mr. Dennis. For the first three years, the team was focused on familiarizing the new members with the VEX system, parts, and processes. In the 2014-2015 season, the team entered their first VEX Robotics Competition at the Tracy NorCal "VEX Skyrise" Tournament and quickly rose to win their first Judge's Award in 2016. Before the 2016 season, the team was composed of eight upperclassmen and founding members. In the 2017-2018 season as the seniors handed off the club to the new surge of members, the team grew by more than double. In the 2018-2019 "Turning Point" season, the team grew to 20 active members spanning from all four grade levels. In 2019, the team hosted their first Pleasanton VRC Tournament, hosting 24 teams from around the Bay Area. In 2020, we established a second team, 1155V, to accommodate for the growth and allow more students to participate. In 2021, we have continued to grow as we have returned to in-person meetings after the COVID-19 pandemic.





OUR CLUB

Presently, there are around 30 members in our club. To maximize efficiency, our club is divided into three divisions. It also allows our members to specialize in their roles, further adding to the productivity and success of our processes.

Programming

The programming division takes care of robot control with coding. They use C++ and the VEXcode V5 API to write successful code to control our robot in competitions. This includes planning, writing, and testing code for the driver control and autonomous periods of the competition. They also have to write algorithms and processes for every movement of the robot. These algorithms include those for wheel movement, joystick steering, and robot arm control. The programming division also works closely with the building division to test the robot's code and tailor it to the specifics of the hardware. Through this, the programming division members learn crucial analytical thinking, problem solving, and teamwork skills.

Building

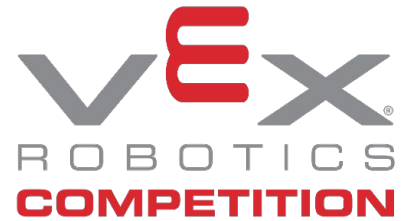
The building division is responsible for building the physical robot. Using the game given by VEX VRC, they strategize the robot to accomplish certain tasks to maximize scoring points in a competition. The VEX EDR and VEX V5 components are used, which are more tailored to high schoolers and professionals. By using proper engineering practices, such as sketching and brainstorming, a final robot design is agreed upon. To view our design in 3D, we use modeling software such as Autodesk Fusion 360. This allows us to view the design of our robot and identify any problems that need to be changed. By doing this, we can test the feasibility of our ideas and adjust the robot's design before building it. Once the design is finalized and all changes are made, the robot is built using specified VEX pieces, such as C-Channels and standoffs. To best prepare for the competition, our team runs countless tests on the robot and makes any necessary adjustments. During this time, several people practice driving the robot and two or three people are recognized as official robot drivers. As the competition is approaching, a strategy is developed to maximize the points scored, allowing the team to place better, hoping to get a spot at the state-level competition.

Business

The business division is responsible for keeping track of budget and finances, organizing the backend of our projects, and public relations. They are in charge of making sure that the rest of the club can operate without any issues by ordering parts, contacting companies and organizations, and designing outreach projects.

COMPETITION

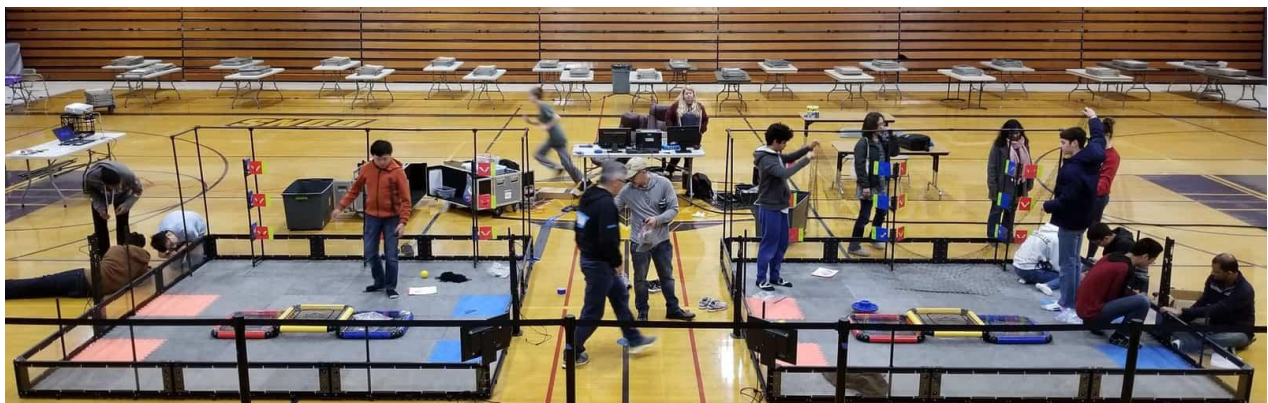
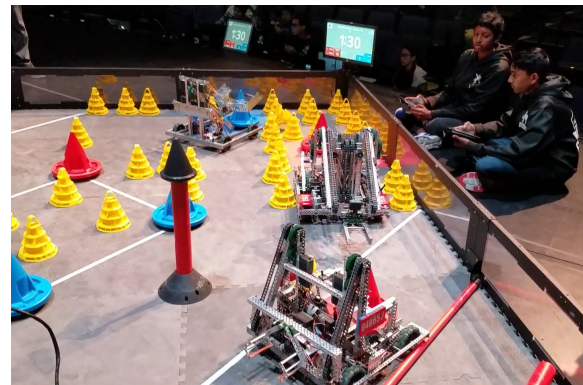
Avengers participates in VEX Robotics Competition, which is a year-round competitive robotics program organized by VEX and the REC Foundation.



VEX Robotics Competitions, presented by the Robotics Education & Competition Foundation, bring STEM skills to life by tasking teams of students with designing and building a robot to play against other teams in a game-based engineering challenge. Students, with guidance from their teachers and mentors, use the VEX Robotics Design System to build innovative robots designed to score the most points possible in qualification matches, elimination matches, and Skills Challenges.

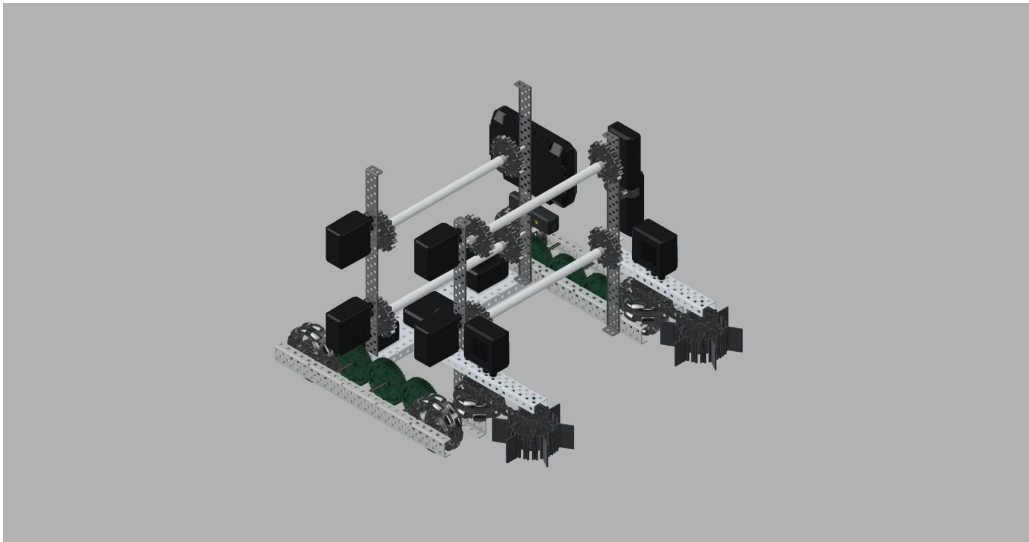


In addition to having a great time and building amazing robots, through their participation in the VEX Robotics Competition and their work within their team, students will learn many academic and life skills. Tournaments are held year-round at the regional, state, and national levels and culminate at the VEX Robotics World Championship each April.

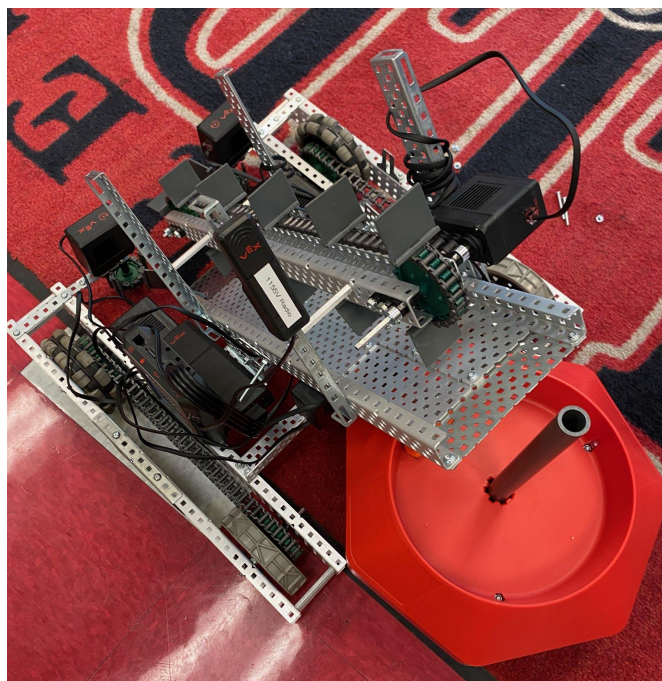


OUR ROBOT

We design a new robot each year to compete in the corresponding competition game. Below are 3D models from our robot from two years ago. We had to design, sketch, and plan our robot before modeling it in Fusion 360.



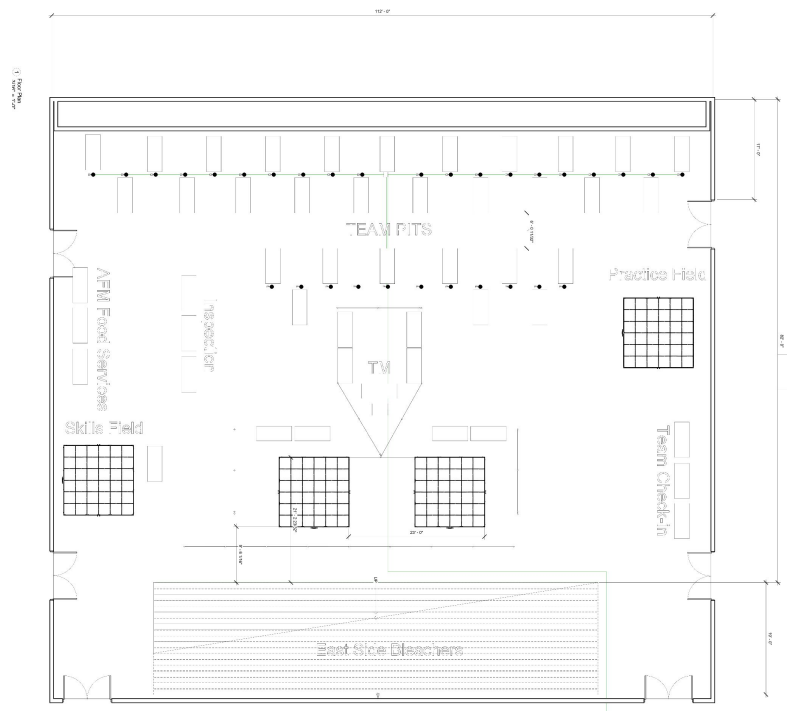
After discussing, sketching, and modeling our ideas, we build our robots using industry standard parts manufactured by VEX. We spend many weeks fine tuning and tinkering with our designs before they are competition-ready. Below is our robot at a competition this year.



HOSTING

Avengineers hosts an annual competition at Amador Valley. This competition usually takes place in January. In 2019, the competition attracted 24 teams from all over the bay, from San Ramon to Palo Cedro. In 2020, that number rose to 30 and the farthest teams came from Los Altos Hills. The night before Saturday's competition, the team set up the gym with several equipment such as tables, game fields, and cables. Planning the logistics of the competition starts weeks in advance with setting up judges, inviting volunteers, planning the layout of the gym floor to accommodate the teams, and organizing the electronic equipment. All of our planning comes together Friday night when tables get put in place, extension cords pulled to all the tables, and the four fields set up to direct traffic around the gym.

On Saturday morning, posters go up around the school entrance and sign posters are hung on light posts in the school's campus to guide teams to the gym venue. Doors open for our competition at 8:00 am and usually ends at 5:00 pm. Soon after the gym opens, it is rumbling with noises with teams trying to make last minute changes so it passes the robot inspection. Momentarily, teams face off against each other, with all the matchups lasting until 2:00 pm.



After the qualification matchups are completed, the elimination bracket starts, where 2 teams are eliminated each round until there are 2 final winners. In 2019, Amador crowned HRS Robotics and DVHS Robotics the winners of the tourney and Barcbots Speed Demons and Barcbots Mobile Bandits were the winners in 2020.

Through this event, our team can interact with other teams and share robot ideas, fostering a relationship. At the same time, several teams come to compete in our competition for a chance at higher levels of competition, such as state and world championships. From every competition, up to three teams qualify to state competitions, for a chance to compete at the world championship.

CURRENT GAME

This year's VEX competition game is called "Spin Up". It is played on a 12'x12' square field configured as seen below. Two alliances – one red and one blue – composed of two teams each, compete in matches consisting of a fifteen second autonomous period, followed by a one minute and forty-five second driver controlled Period.



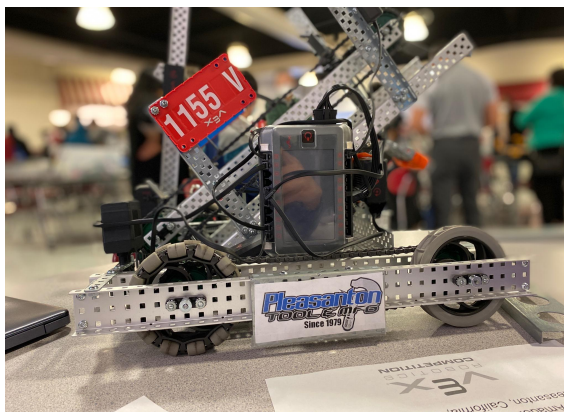
The goal is to get as many points as possible against the enemy alliance by scoring discs in goals, moving rollers, and covering tiles at the end of the match. There are sixty discs and four rollers. Discs are to be scored in the two goals at opposite corners of the field. In addition to discs, robots can also spin the four rollers mounted to the field perimeter, which are worth 10 points. At the end of the match, alliances will receive a 3 point bonus for each tile their robots are covering.

BECOME A SPONSOR

Running this club and the competition we host requires a great sum of money and resources. We have to buy official parts, kits, and other materials every year. Support from sponsors would greatly help us, as we would be able to fund our projects and devote more time to perfecting our craft. As we are self-funded, any contributions are greatly appreciated. Donations will allow our club to continue to grow, which will allow more students to become exposed to engineering topics. By sponsoring us, you will become a part of that journey by enabling the high school students of today to become the next generation of engineers and scientists.

The COVID-19 pandemic has also greatly impacted our club, as we were unable to host our annual competition last year and hence were left without any income in the last 30 months.

Sponsoring us enables you to grow your audience to the high school engineering community as well as any and all professionals that can and do attend our competitions. Having your logo and information displayed by us means that your company will constantly be promoted in local and wider settings. Your company logo and details will be displayed on our robot, engineering notebook, website, and more.



SPONSORSHIP TIERS

Our sponsorship tiers enable our biggest sponsors to get the most out of our relationship. You will be guaranteed your tier for two years.

Platinum - \$1000+

- Logo displayed on all flyers, posters, and advertisements in our school
- Logo displayed on our competition robot, which will be seen by approximately 350 people at each competition
- Logo displayed on all flyers, posters, and advertisements in our school
- Name and logo clearly displayed at our annual competition, which is attended by around 200 people
- Name and logo in all slideshow presentations for outreach and recruitment
- Name and logo on our engineering notebook, which is seen by the judges at all competitions we attend
- Name and logo in our 2023-2024 sponsorship packet
- Sponsorship information posted on Instagram and Facebook

Gold - \$500+

- Logo, website, and company description displayed on our website under Gold category
- Logo displayed on all flyers, posters, and advertisements in our school
- Name and logo clearly displayed at our annual competition, which is attended by around 200 people
- Name and logo in all slideshow presentations for outreach and recruitment
- Name and logo on our engineering notebook, which is seen by the judges at all competitions we attend
- Name and logo in our 2023-2024 sponsorship packet
- Sponsorship information posted on Instagram and Facebook

Silver - \$250+

- Logo, website, and company description displayed on our website under Silver category
- Name and logo in all slideshow presentations for outreach and recruitment
- Name and logo on our engineering notebook, which is seen by the judges at all competitions we attend
- Name and logo in our 2023-2024 sponsorship packet
- Sponsorship information posted on Instagram and Facebook

Bronze - \$50+

- Logo, website, and company description displayed on our website under Bronze category
- Name and logo in our 2023-2024 sponsorship packet
- Sponsorship information posted on Instagram and Facebook

CURRENT SPONSORS

Thank you to our sponsors and any other people who have donated to our club!

PLATINUM



SILVER



CONTACT US

Mailing Address

Write check to: Amador Valley High School
(All donations to us are tax deductible.)

Memo Line: Avengers (Engineering Club)

Mail to: Tony Dennis
Amador Valley High School
1155 Santa Rita Road
Pleasanton, CA 94566

Email

team@avengineers.org

Instagram

[@av_engineers](https://www.instagram.com/av_engineers)

Website

avengineers.org

Facebook

[@avhsvex](https://www.facebook.com/avhsvex)

